REMARKS/ARGUMENTS

1. Request for Continued Examination:

The applicant respectfully requests continued examination of the above-indicated application as per 37 CFR 1.114.

The amendments made to the claims in the above section are over the last entered amendment filed October 3, 2005.

2. Rejection of claims 1-4, 10-11, and 19-21 under 35 U.S.C. 103(a):

Claims 1-4, 10-11, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ming-Jiunn et al. (US 6,078,064, Ming-Jiunn hereinafter) in view of Seaford et al. (US 2003/0201460, Seaford hereinafter).

Response:

Claim 1 has been amended to distinguish from the cited prior art. Claim 1 now specifies the material of the first and second conductivity type contact layers, and also recites that the nitride based dual dopant contact layer comprises at least a p-type impurity and an n-type impurity, and that a concentration of the n-type impurity is higher than a concentration of the p-type impurity. All claim amendments are supported by Figure 1 of the instant application, along with the corresponding sections of the specification.

On the other hand, Seaford disclosed a GaAs high dual dopant layer with low resistance (See [0021] and the table below). Seaford doped C and Be with the same carrier in layer 12. However, this does not mean that the high dual dopant layer is a high p-type carrier (hole) concentration layer (more than 5E18), especially in nitride-based material. If the p-type carrier concentration of the GaAs high dual dopant layer of Seaford is not great enough, the high dual dopant layer will not have a low resistance contact with the ITO. This means that it is not clear if this kind low resistance material is an ohmic contact layer with ITO in low resistance contact.

The material of the high dual dopant layer in Seaford is GaAs, not nitride, and the material concentration in Seaford is dopant concentration not carrier concentration. Therefore, it is not obvious from the disclosure of Ming-Jiunn to include the limitation of the dual dopant contact layer in view of Seaford, and the applicant respectfully submits that one skilled in the art would not find it obvious to combine the teachings of Ming-Jiunn and Seaford to achieve the invention.

Furthermore, in the specification of the instant application, the Summary of Invention we can see that, "Therefore, it is an object of the invention to provide a light emitting diode (LED) with a dual dopant contact layer, **wherein the contact layer is not required to provide high carrier concentration**". This means that the dual dopant contact layer is not a high carrier concentration layer and not a low resistance layer. However, the dual dopant contact layer can make ohmic contact with ITO in a low resistance (see summary of invention last paragraph "[0010].... With the p-type impurity and the n-type impurity coexist in the dual dopant layer, **the resistance** associated with the ohmic contact between the transparent conductive oxide layer and the stacked semiconductor layers of the LED is **reduced**."

In the art, we know that the active efficiency of n-type dopant in nitride material is greater than that of p-type dopant. The active efficiency of n-type dopant in nitride material is about 100%, but the active efficiency of p-type dopant in nitride material is about 0.1-1.0%. So from the embodiment "[0016] ...The dual dopant contact layer then has the concentration of n-type impurity equaling $8*10^{18}$ cm^{-3}, and has the concentration of p-type impurity equaling $5*10^{18}$ cm^{-3}", the n-type carrier concentration must higher than the p-type carrier concentration. This proves that the dual dopant contact layer is not high p-carrier concentration and low resistance. The dual dopant contact layer is not a highly conductive layer.

Claim 20 contains the limitation of the nitride based dual dopant contact

layer comprising a p-type impurity and an n-type impurity, wherein the dual dopant contact layer is essentially not p-type. In the second embodiment of the instant application, paragraph [0016] states, "The dual dopant contact layer then has the concentration of n-type impurity equaling $8*10^{18}$ cm^{-3}, and has the concentration of p-type impurity equaling $5*10^{18}$ cm^{-3}." Therefore, the n-type carrier concentration must higher than the p-type carrier concentration, and this proves that the dual dopant contact layer is not p-type.

For the reasons stated above, claims 1 and 20 are patentable over the combination of Ming-Jiunn and Seaford. Claims 2-4, 7-9, and 19 are dependent on claims 1 and 20, and should be allowed if claims 1-20 are allowed. Reconsideration of claims 1-4, 7-9, and 19-20 is respectfully requested.

3. Introduction to new claims 22-38:

New claims 22-29 are substantial duplicates of claims 2-4, 7-9, and 19. Claims 28 and 29 are supported in paragraph [0015] of the specification. In addition, claims 22-29 are dependent on claim 20 and should be allowed if claim 20 is allowed.

Similar to claims 1 and 20, new independent claim 30 contains the limitations of "a nitride based dual dopant contact layer formed over the light emitting stacked structure, the nitride based dual dopant contact layer comprising a p-type impurities and an n-type impurity; and the dual dopant contact layer is essentially not a highly conductive layer". These limitations are not taught by the combination of Ming-Jiunn and Seaford.

Regarding claim 38, support for the limitation "the dual dopant contact layer has a p-type carrier concentration lower than $5x10^{18}$ cm^{-3}" is found in paragraph [0016] of the specification. On the other hand, Ming-Jiunn teaches that the contact layer concentration is $5x10^{18}$ cm^{-3}, but does not teach that the dual dopant contact layer has a concentration of $5x10^{18}$ cm^{-3}. Furthermore, claims 31-38 are dependent on claim 30, and should be allowed if claim 30 is allowed. Acceptance

of claims 22-38 is respectfully requested.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Sincerely yours,

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